



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,657	11/09/2000	Hiroshi Yokogawa	199620US0X	3153

22850 7590 07/21/2003

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

YUN, JURIE

ART UNIT	PAPER NUMBER
----------	--------------

2882

DATE MAILED: 07/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/708,657

Applicant(s)

YOKOGAWA ET AL.

Examiner

Jurie Yun

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7, 8 and 12-20 is/are rejected.
- 7) ☒ Claim(s) 4, 6 and 9-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The amendment filed 5/30/03 has been entered, and claims 21 and 22 have been cancelled.

### ***Drawings***

2. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 5/30/03 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 14-16, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the

remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 14 and 18 recite the broad recitation "aerogel", and the claim also recites "preferably of a silica aerogel" which is the narrower statement of the range/limitation. Likewise, claim 15 recites the broad recitation "aerogel", and the claim also recites "preferably of a silica aerogel in the form of a thin film" which is the narrower statement of the range/limitation. Finally, claims 16 and 19 recite the broad recitation "plate", and the claim also recites "preferably a glass plate" or "preferably in the form of a glass plate" which is the narrower statement of the range/limitation.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 5, 7, and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayyagari et al. (USPN 4,455,506) and further in view of Gnade et al. (USPN 5,525,857).

8. With respect to claim 1, Ayyagari et al. disclose a substrate for a light emitting device, characterized in that the substrate comprises an electrically conductive transparent film (14). Ayyagari et al. do not disclose the electrically conductive

transparent film is in contact with at least one surface of a low refractive index member, and the low refractive index member has a refractive index greater than 1 and not greater than 1.30.

Gnade et al. disclose a low refractive index member (20) having a refractive index greater than 1 and not greater than 1.30 (column 5, lines 34-44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the dielectric layer 16 of the Ayyagari et al. invention with the low refractive index member, 20, of the Gnade et al. invention motivated by the benefit of a reduction of power consumption, as taught by Gnade et al. (column 8, lines 5-8).

9. With respect to claim 12, Ayyagari et al. disclose a light emitting device which comprises a luminous layer (18). Ayyagari et al. do not disclose the luminous layer is in contact with at least one surface of a low refractive index member of which refractive index is greater than 1 and not greater than 1.30.

Gnade et al. disclose a low refractive index member (20) of which refractive index is greater than 1 and not greater than 1.30 (column 5, lines 34-44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the dielectric layer 16 of the Ayyagari et al. invention with the low refractive index member, 20, of the Gnade et al. invention motivated by the benefit of a reduction of power consumption, as taught by Gnade et al. (column 8, lines 5-8).

10. With respect to claim 13, Ayyagari et al. disclose a light emitting device comprising a transparent member (14). Ayyagari et al. do not disclose a low refractive member of which refractive index is greater than 1 and not greater than 1.30 is located

Art Unit: 2882

on the transparent member (14), and a luminous layer (18) is located on a surface of the low refractive index member in the form of the thin film.

Gnade et al. disclose a low refractive index member (20) of which refractive index is greater than 1 and not greater than 1.30 (column 5, lines 34-44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the dielectric layer 16 of the Ayyagari et al. invention with the low refractive index member, 20, of the Gnade et al. invention motivated by the benefit of a reduction of power consumption, as taught by Gnade et al. (column 8, lines 5-8). As to the Ayyagari et al. luminous layer (18), it is not specifically disclosed that this is in the form of a thin film, but thin film luminous layers are well known in the art, and one would be motivated to use a thin film luminous layer in the case of producing a thin flat panel display.

11. With respect to claims 2, 3, 14 and 15, Ayyagari et al. do not disclose the low refractive index member is made of an aerogel or silica aerogel. Gnade et al. disclose the low refractive index member is made of an aerogel or silica aerogel (column 7, line 50 - column 8, line 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the dielectric layer 16 of the Ayyagari et al. invention with aerogel or silica aerogel, motivated by the benefit of a reduction of power consumption, as taught by Gnade et al. (column 8, lines 5-8).

12. With respect to claim 5, Ayyagari et al. and Gnade et al. do not disclose the electrically conductive transparent film is made of at least one material selected from the group consisting of indium-tin oxide, indium-zinc oxide, zinc-aluminum oxide, gold,

Art Unit: 2882

silver, copper and chromium. However, all of these materials for use as an electrically conductive transparent film is well known to one of ordinary skill in the art. It would have been obvious to one of ordinary skill in the art to modify the Ayyagari et al. in view of Gnade et al. invention and have the electrically conductive transparent film be made of at least one material selected from the group consisting of indium-tin oxide, indium-zinc oxide, zinc-aluminum oxide, gold, silver, copper and chromium, because the use of which material to use is not critical to the invention.

13. With respect to claim 7, Ayyagari et al. and Gnade et al. do not disclose the low refractive index member is in the form of a thin film. However, it would be obvious to one of ordinary skill in the art to modify the Ayyagari et al. in view of Gnade et al. invention and have the low refractive index member be in the form of a thin film for the purpose of producing a thin flat panel display, if so desired.

14. With respect to claim 16, Ayyagari et al. disclose the transparent member is a glass plate (column 2, line 11).

15. Claim 8/3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ayyagari et al. (USPN 4,455,506) in view of Gnade et al. (USPN 5,525,857) as applied to claim 1 above, and further in view of Ayers et al. (USPN 5,885,843).

16. With respect to claim 8/3, Gnade et al. do not disclose the low refractive index member has been made hydrophobic. Ayers et al. disclose silica aerogel which has been made hydrophobic (column 8, lines 58+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Ayyagari et al. in view of Gnade et al. invention and have the silica aerogel be made hydrophobic,

motivated by the desire to prevent unwanted water/moisture from entering the layer and degrading the device, as taught by Ayers et al. (column 8, lines 58+).

17. Claims 17, 18, 19, and 20/17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter et al. (USPN 4,458,177) and further in view of Gnade et al. (USPN 5,525,857).

18. With respect to claims 17 and 18, Hunter et al. disclose a light emitting device (1) characterized in that it comprises a luminous layer (8) located on a transparent member (10), and the luminous layer is made of a low refractive index member in the form of a thin film which contains particles of a luminescent material dispersed therein or which carries such particles (column 1, lines 44-67). Hunter et al. do not disclose the refractive index member has a refractive index which is greater than 1 and not greater than 1.30.

Gnade et al. disclose a refractive index member with a refractive index which is greater than 1 and not greater than 1.30 (column 5, lines 34-44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the Hunter et al. low refractive index member with silica aerogel, motivated by the benefit of a reduction of power consumption, as taught by Gnade et al. (column 8, lines 5-8).

19. With respect to claim 19, Hunter et al. disclose the transparent member (10) is in the form of a glass plate.

20. With respect to claim 20/17, Hunter et al. do not disclose the luminous layer of the light emitting device is a PL luminous layer or a layer which emits light by means of



Art Unit: 2882

irradiation of an electron beam. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Hunter et al. in view of Gnade et al. invention and disclose the luminous layer of the light emitting device is a PL luminous layer or a layer which emits light by means of irradiation of an electron beam because it would only involve a slight modification in the luminous layer/electrode structure to convert from EL to PL light emitting device.

***Allowable Subject Matter***

21. Claims 4, 6, and 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter: Prior art fails to disclose the low refractive index member has two surfaces which are opposed to each other, and the electrically conductive transparent film is positioned on one of those surfaces and a transparent member is positioned on the other surface. Prior art also fails to disclose the electrically conductive transparent film has the luminous layer on its one surface which is opposite to its other surface which has the low refractive index member thereon.

***Response to Arguments***

23. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2882

**Conclusion**


24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jurie Yun whose telephone number is 703 308-3535.

The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 703 308-4858. The fax phone numbers for the organization where this application or proceeding is assigned are 703 308-7722 for regular communications and 703 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0956.

Jurie Yun  
July 14, 2003

  
EDWARD W. GLICK  
*Supervisor* EXAMINER  
TECHNOLOGY CENTER 2800